

Fixed-Input Temperature Transmitter TRN

- ◆ Low cost
- ◆ 2- or 3-wire output line connection
- ◆ High resistance to electromagnetic disturbances
- ◆ ZERO and SPAN adjustment
- ◆ In-head and DIN-rail versions
- ◆ IP65 box and Ex housing available

COMECO's current loop transmitter TRN converts the signal from a temperature sensor into standard current or voltage signal that can be safely sent over long distances to remote indicators, data loggers, or controllers. In addition to the most common thermoresistance and thermocouple sensors, TRN may convert linear analog input signals (current or voltage). The transmitter is based on high-tech integral circuits and has fixed input range. Two-wire- and three-wire-output variants are offered. Both are available in case for mounting inside sensor protection head, in watertight box with high protection class, in case for mounting on a DIN rail, and in case prepared for mounting in Ex housings. TRN can withstand considerable electromagnetic disturbances and is a perfect low-cost solution for general-purpose applications.



Technical specifications

Input

Pt50...1000; 2- or 3-wire	min. -50...max. 500 °C ⁽¹⁾
Cu100; 2- or 3-wire	min. -50...max. 250 °C ⁽¹⁾
Cu50; 2- or 3-wire	min. -50...max. 250 °C ⁽¹⁾
Other thermoresistive	min. -50...max. 500 °C ⁽¹⁾
Thermocouple "E"	min. 0...max. 1000 °C ⁽¹⁾
Thermocouple "J"	min. 0...max. 1000 °C ⁽¹⁾
Thermocouple "K"	min. 0...max. 1300 °C ⁽¹⁾
Thermocouple "L"	min. 0...max. 800 °C ⁽¹⁾
Thermocouple "L - GOST"	min. 0...max. 800 °C ⁽¹⁾
Thermocouple "T"	min. 0...max. 400 °C ⁽¹⁾
Thermocouple "U"	min. 0...max. 600 °C ⁽¹⁾
Linear current	min. 0...max. 20 mA ⁽¹⁾
Linear voltage	min. 0...max. 10 V ⁽¹⁾
Minimum input range width	RTD: 50 °C, T/C: 250 °C
ZERO and SPAN adjustment	± 10%

Output

2-wire current	4...20 mA
3-wire current	0...5 mA, 0(4)...20 mA
3-wire voltage	0...1 / 2 / 5 / 10 V, 1...5 V, 2...10 V
RTD linearly proportional to	temperature
T/C linearly proportional to	input voltage
Current limits	Low: < 3.5 mA, High: > 20 mA
Reaction at RTD failure	Low or High, depends on terminal
Reaction at T/C failure	High

Accuracy

Measurement error	0.3% from span
Non-linearity for RTD input	0.3% from span
Self-heating error	0.02%/mA at 24 V
Temperature drift	0.02% from span for 1 °C
Cold junction compensation	automatic hardware, ± 1 °C

Power supply

Supply voltage:	8...32 VDC (for RTD / linear input) or 12...36 VDC (for T/C input)
- for 2-wire output	8...36 VDC
- for 3-wire current output	(U _{max} +3)...36 VDC
- for 3-wire voltage output	up to 2 mA (3-wire output)
Consumption	1 Vp-p at 50 Hz
Admissible variations	620 Ω (750 Ω for T/C) at 24V/20mA
Maximum line load	

Operating conditions

Ambient temperature	-20...70 °C
Ambient humidity	0...95 %RH, non-condensing

Design and materials

Case material	plastic		
Wiring	screw terminals		
Mounting	in head ^(2,3,4)	on rail	in box ⁽³⁾
Dimensions [mm]	ø44x19	18x90x58	80x80x60
Weight	30 g	90 g	170 g
Protection class	IP20	IP20	IP65

⁽¹⁾ Specify lower and upper span ranges when ordering.

⁽²⁾ Head type "B" or any other with 33 mm distance between centers of the female threaded openings

⁽³⁾ May be mounted on rail by a special snap-on accessory, which is ordered separately (see 'Accessories').

⁽⁴⁾ May be mounted in different, separately ordered Ex housings for field applications (see 'Accessories').

Ordering code TRN* - G6'6".G11'11".G12

Code	Feature or option	Code values
*	Variant	2 - with 2-wire output line, 3 - with 3-wire output line
G6'	Input signal	B - thermoresistance, C - thermocouple, D - linear
G6"	RTD	B - Pt50, D - Pt100, F - Pt500, G - Pt1000, H - Cu50, K - Cu100, Z - other
	T/C	J - "J", K - "K", E - "E", L - "L", T - "T", U - "U"
G11'	linear	A - 0...5 mA, B - 0...20 mA, C - 4...20 mA, H - 0...1 V, I - 0...2 V, J - 0...5 V, K - 0...10 V, Z - other
	Output signal ⁽⁵⁾	B - 0...5 mA, C - 1...5 mA, D - 2...10 mA, E - 0...20 mA, F - 4...20 mA, G - 0...1 V, H - 0...2 V, I - 0...5 V, J - 1...5 V, K - 0...10 V, L - 2...10 V, Z - other
G11"	Transmission range	(RANGE) (see table above)
G12	Mounting	B - in head ^(2,3) , C - on DIN rail, D - in box IP65 (box included) ⁽³⁾ , E - in Ex housing (includes mounting kit only)

⁽⁵⁾ For 2-wire output line, output signal can only be 4...20 mA (G11' = "F")!!!